

CLAIMS:

5 1. A method for route selection in connection-oriented packet-switching networks in which data packets are transmitted on a current communications path, said method comprising the steps of:

receiving a request for selecting an alternate communications path, said request containing information regarding the network resources used by said current communications path;

10 supplementing the resources available in said network with said network resources used by said current communications path, while computing an alternate communications path.

2. The method of claim 1, wherein said network resources include bandwidth, CPU, memory, links/nodes.

3. The method of claim 2, wherein said alternate communications path uses a bandwidth, CPU and memory which are not greater than the bandwidth, CPU and memory used by said current communications path.

20 4. The method of claim 2, wherein said alternate communications path uses a bandwidth, CPU and memory which are greater than the bandwidth, CPU and memory used by said current communications path.

25 5. The method of claim 1, wherein said step of computing said alternate communications path includes using information from a network topology database.

30 6. The method of claim 3 or 4, wherein said alternate path includes a link used by said current communications path.

7. A method for route selection in connection-oriented packet-switching networks in which data packets are transmitted on a current communications path, said method comprising the steps of:

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- a) receiving a request for selecting an alternate communications path, said request containing information regarding network resources reservations used by said current communications path;
- b) removing said network resources reservations used by said current communications path from a network topology database;
- 10 c) computing said alternate communications path based on information accessed from said network topology database; and
- d) restoring said network topology database to reflect again said network resources reservations used by said current communications path.

8. The method of claim 7, wherein sub-steps (b) to (d) are performed as an atomic transaction.

9. The method of claim 7, wherein said network resources include bandwidth, CPU, memory, links/nodes.

10. The method of claim 9, wherein said alternate communications path uses a bandwidth, CPU and memory which are not greater than the bandwidth, CPU and memory used by said current communications path.

11. The method of claim 9, wherein said alternate communications path uses a bandwidth, CPU and memory which are greater than the bandwidth, CPU and memory used by said current communications path.

12. The method of claim 10 or 11, wherein said alternate path includes a link used by said current communications path.

13. A route selector for selecting an alternate communications path in connection-oriented packet-switching networks in which data packets are transmitted on a current communications path, said route selector comprising:

means for receiving a route selection request, said request containing information regarding the network resources used by said current communications path;

means for supplementing the resources available in said network with said network resources used by said current communications path; and

means for computing said alternate communications path.

14. The route selector of claim 13, wherein said network resources include bandwidth, CPU, memory, links/nodes.

15. The route selector of claim 14, wherein said alternate communications path uses a bandwidth, CPU and memory which are not greater than the bandwidth, CPU and memory used by said current communications path.

16. The route selector of claim 14, wherein said alternate communications path uses a bandwidth, CPU and memory which are greater than the bandwidth, CPU and memory used by said current communications path.

17. The route selector of claim 14 or 15, wherein said alternate path includes a link used by said current communications path.

18. A route selector for selecting an alternate communications path in connection-oriented packet-switching networks in which data packets are transmitted on a current communications path, said route selector comprising:

means for receiving a route selection request, said request containing information regarding the network resources reservations used by said current communications path;

means for removing said network resources reservations used by said current communications path from a network topology database;

means for computing said alternate communications path based on information accessed from said network topology database; and

means for restoring said network topology database to reflect again said network resources reservations used by said current communications path.

19. The route selector of claim 18, wherein said network resources include bandwidth, CPU, memory, links/nodes.

20. The route selector of claim 18, wherein said alternate communications path uses a bandwidth, CPU and memory which are not greater than the bandwidth, CPU and memory used by said current communications path.

21. The route selector of claim 19, wherein said alternate communications path uses a bandwidth, CPU and memory which are greater than the bandwidth, CPU and memory used by said current communications path.

22. The route selector of claim 20 or 21, wherein said alternate path includes a link used by said original communications path.

23. A computer-readable medium containing computer executable instructions for performing the steps of:

a) receiving a route selection request for finding an alternate communications path in connection-oriented packet-switching networks in which data packets are transmitted on a current communications path, said request containing information regarding the network resources reservations used by said current communications path; and

b) computing said alternate communications path after increasing the resources available in said network with said network resources reservations used by said current communications path.

5 24. The computer-readable medium of claim 23, wherein step (b) includes the following sub-steps:

b1) removing said network resources reservations used by said current communications path from a network topology database;

10 b2) computing said alternate communications path based on information accessed from said network topology database; and

b3) restoring said network topology database to reflect again said network resources reservations used by said current communications path.

15 25. The computer-readable medium of claim 24, wherein said sub-steps (b1) to (b3) are performed as an atomic transaction.

20 26. The computer-readable medium of claim 23, wherein said network resources include bandwidth, CPU, memory, links/nodes.

25 27. The computer-readable medium of claim 26, wherein said alternate communications path uses a bandwidth, CPU and memory which are not greater than the bandwidth, CPU and memory used by said current communications path.

28. The computer-readable medium of claim 26, wherein said alternate communications path uses a bandwidth, CPU and memory which are greater than the bandwidth, CPU and memory used by said current communications path.

29. The computer-readable medium of claim 27 or 28, wherein said alternate path includes a link used by said current communications path.

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